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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,531	07/10/2006	Thinh T. Nguyen	MOL 0678	4501
7590 Jayadeep R Deshmukh 458 Cherry Hill RD Princeton, NJ 08540			EXAMINER EMPIE, NATHAN H	
			ART UNIT 1712	PAPER NUMBER
			MAIL DATE 06/02/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,531	<b>Applicant(s)</b> NGUYEN ET AL.	
	<b>Examiner</b> NATHAN H. EMPIE	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 8-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Examiner acknowledges receipt of 4/2/09 preliminary amendment to the claims which was entered into the file.

#### ***Election/Restrictions***

1. Applicant's election without traverse of Group I claims 1-7 in the reply filed on 3/17/10 is acknowledged.
2. Claims 8-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/17/10.

#### ***Claim Objections***

3. Claim 7 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim (in this case multiple dependent claim 7 depends on multiple dependent claim 3). See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujitani et al (US patent 4,299,734; hereafter Fujitani) in view of Reinalda et al (US patent 5,217,938; hereafter Reinalda).

6. Claims 1 and 2: Fujitani teaches a method of producing a ceramic material (such as a catalyst carrier) (see, for example, abstract) comprising the steps of:

7. providing a sintered structural mass that has an open porosity and that is made of refractory compound (such as zirconia) (see, for example, col 2 lines 39 - 48).

8. impregnating the open porosity of sintered structural mass with a heat-convertible precursor of colloidal particles of iron oxide (such as ferrous or ferric nitrate) (see, for example, col 2 lines 39 – 56).

9. Fujitani has taught wherein the sintered structural mass is a porous article design to be impregnated with a catalyst, such as a honeycomb or pillared structure (see, for example, abstract, and col 2 lines 39 - 56). Fujitani is silent as to the size of the porosity of the sintered structural mass, so Fujitani does not explicitly teach the porosity as microporosity. Reinalda teaches a method of producing a zirconia-based catalyst (See, for example, abstract). Reinalda further teaches that the catalytic properties of a zirconia support can be improved by having microporosity (See, for example, col 3 lines 20 - 28). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have provided the sintered zirconia catalyst support of Fujitani with open microporosity as Reinalda has taught that such microporosity can improve catalytic properties.

Fujitani has taught impregnating iron oxide into the porous sintered body of zirconia by heating an iron nitrate (see, for example, col 2 lines 39 - 56). Fujitani further teaches wherein the oxide impregnated support is exposed to heat treatment on the order of 600°C for 3 hours (See, for example, col 3 lines 46 – 51). But Fujitani in view of Reinalda are silent as to the type of structure formed by the iron –oxide precursor following such heat treatment, so they do not explicitly teach that the colloidal particle precursors form sintered agglomerates in the open micropores of the structural mass. The examiner asserts that as the iron-oxide colloid precursor of the Fujitani reference experiences a heat treatment substantially similar to that described by the Applicant's (See, for example, Example 2 of Applicants specification, pg 19-20 (~650°C for 4 hours)), the examiner asserts that such a compact sintered agglomerate structure would inherently be present in the open microporosity of Fujitani in view of Reinalda. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of obviousness has been established, *In re Best*, 195 USPQ 430, 433 (CCPA 1977). Further “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not” *In re Spada*, 15 USPQ2d 1655 1658 (Fed Cir. 1990).

Claim 3: Fujitani further teaches wherein the structural mass is formed by sintering a ceramic particulate (such as zirconia powder used to form the porous sintered body of zirconia) (See, for example, col 2 lines 39-47).

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10. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujitani in view of Reinalda as applied to claim 3 above, and further in view of Imamura et al (US patent 5,437,832; hereafter Imamura).

11. Claim 4: Fujitani in view of Reinalda teach the method of claim 3 (described above) wherein Fujitani has taught the porous refractory bodies for catalytic applications can be formed by molding an oxide powder (See, for example, col 2 lines 39 - 44). But Fujitani in view of Reinalda do not explicitly teach wherein the ceramic particulate is suspended in a slurry which is dried before sintering to form the porous body. Imamura teaches a method for preparing porous refractory bodies (see, for example, abstract) for applications such as catalysts and catalyst supports (See, for example, col 2 lines 48 – 51). Imamura further teaches that conventional molding processes can be limiting with respect to shapes formed as well as high preparation costs (See, for example, col 1 lines 14 – 36). Imamura teaches that porous refractory bodies for catalytic applications can be predictably formed by mixing the particulate with a binder and stirring to form a slurry mixture which is then dried and sintered (See, for example, col 2 line 63 – col 3 line 2, and col 3 lines 45 – 60). It would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the steps of suspending the ceramic particulate in a slurry which is dried before sintering to form the porous body as taught by Imamura into the method of Fujitani in view of Reinalda as such a method would avoid the limitations of conventional molding / casting procedures such as high cost and limited shape while predictably producing a porous refractory bodies for catalytic applications.

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12. Claims 5 and 6: Imamura further teaches wherein the slurry comprises a binder such as colloidal silica (see, for example, col 4 lines 50 – 67).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN H. EMPIE whose telephone number is (571)270-1886. The examiner can normally be reached on M-F, 6:45- 4:15 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nathan H Empie/  
Examiner, Art Unit 1712